

University of Nebraska - Lincoln

DigitalCommons@University of Nebraska - Lincoln

Nebraska Tractor Tests

Tractor Test and Power Museum, The Lester F. Larsen

January 1938

Test 307: Massey-Harris Model "101" R

Nebraska Tractor Test Lab

University of Nebraska-Lincoln, tractortestlab@unl.edu

Follow this and additional works at: <https://digitalcommons.unl.edu/tractormuseumlit>



Part of the [Energy Systems Commons](#), [History of Science, Technology, and Medicine Commons](#), [Other Mechanical Engineering Commons](#), [Physical Sciences and Mathematics Commons](#), [Science and Mathematics Education Commons](#), and the [United States History Commons](#)

Nebraska Tractor Test Lab, "Test 307: Massey-Harris Model "101" R" (1938). *Nebraska Tractor Tests*. 907. <https://digitalcommons.unl.edu/tractormuseumlit/907>

This Article is brought to you for free and open access by the Tractor Test and Power Museum, The Lester F. Larsen at DigitalCommons@University of Nebraska - Lincoln. It has been accepted for inclusion in Nebraska Tractor Tests by an authorized administrator of DigitalCommons@University of Nebraska - Lincoln.

4 pages-page 1

UNIVERSITY OF NEBRASKA - AGRICULTURAL ENGINEERING DEPARTMENT
 AGRICULTURAL COLLEGE, LINCOLN

Copy of Report of Official Tractor Test No. 307

Dates of test: September 9 to 30, 1938.
 Name and model of tractor: MASSEY-HARRIS "101" R
 Manufacturer: Massey-Harris Company, Racine, Wisconsin.
 Manufacturer's rating: NOT RATED.

B E L T H O R S E P O W E R T E S T S

H. P.	Crank shaft speed R.P.M.	Fuel Consumption			Water used gal. per hr.	Temp. Deg. F.		Barometer Inches of Mercury
		Gal. per hr.	H. P. hr. per gal.	Lb. per H. P. hr.		Cooling med.	Air	
<u>1500 R.P.M.</u>								
TEST B - 100% MAXIMUM LOAD - TWO HOURS								
35.40	1500	3.105	11.40	0.541	0.000	181	69	29.010
TEST C - OPERATING MAXIMUM LOAD - ONE HOUR								
34.10	1500	2.880	11.84	0.521	0.000	182	71	29.010
*TEST D - ONE HOUR								
31.40	1500	2.775	11.32	0.545	0.000	182	75	29.015
TEST E - VARYING LOAD - TWO HOURS (20 minute runs; last line average)								
31.21	1495	2.737	11.40	0.541	--	184	76	--
1.16	1655	1.361	0.85	7.241	--	157	74	--
16.36	1558	1.945	8.41	0.734	--	167	75	--
32.34	1424	2.733	11.83	0.522	--	184	77	--
8.45	1614	1.677	5.04	1.225	--	162	76	--
23.91	1521	2.305	10.37	0.595	--	171	75	--
18.91	1545	2.126	8.89	0.694	0.000	171	75	29.020
<u>1800 R.P.M.</u>								
TEST B - 100% MAXIMUM LOAD - TWO HOURS								
40.67	1800	3.649	11.15	0.553	0.000	183	76	29.010
TEST C - OPERATING MAXIMUM LOAD - ONE HOUR								
38.65	1802	3.313	11.67	0.529	0.000	183	79	28.910
*TEST D - ONE HOUR								
36.34	1800	3.253	11.17	0.552	0.000	184	81	28.895
TEST E - VARYING LOAD - TWO HOURS (20 minute runs; last line average)								
36.36	1796	3.243	11.21	0.550	--	185	81	--
1.36	1948	1.585	0.86	7.191	--	157	79	--
18.81	1866	2.241	8.39	0.735	--	166	79	--
37.92	1750	3.248	11.67	0.523	--	180	79	--
9.66	1907	1.911	5.05	1.220	--	161	76	--
27.83	1844	2.731	10.01	0.617	--	171	77	--
21.99	1852	2.502	8.79	0.702	0.000	170	78	28.870

*Formerly called RATED LOAD; see REMARKS 4, page 4,

4 pages-page 2

UNIVERSITY OF NEBRASKA - AGRICULTURAL ENGINEERING DEPARTMENT
 AGRICULTURAL COLLEGE, LINCOLN

Copy of Report of Official Tractor Test No. 307

D R A W B A R H O R S E P O W E R T E S T S

H. P.	Draw bar pull pounds	Speed miles per hr.	Crank shaft speed R.P.M.	Slip on drive wheels %	Fuel Consumption			Water used gal. per hr.	Temp. Deg. F.		Barometer Inches of Mercury
					Gal. per hr.	H. P. per gal.	Lb. per H.P. hr.		Cooling med.	Air	

RUBBER TIRES

TEST F - 100% MAXIMUM LOAD - Third - GEAR

31.50	2487	4.75	1501	5.34	----- Not Recorded -----			182	68	28.750
-------	------	------	------	------	--------------------------	--	--	-----	----	--------

TEST G - OPERATING MAXIMUM LOAD

20.16	3199	2.36	1499	11.72	----- Not Recorded -----			151	57	29.210
29.20	3233	3.39	1497	9.39	----- " " -----			174	64	28.770
30.36	2392	4.76	1501	5.14	----- " " -----			181	68	28.750

*TEST H - TEN HOURS - Third GEAR

24.79	1936	4.80	1500	4.21	2.489	9.96	0.619	0.000	167	71	29.010
-------	------	------	------	------	-------	------	-------	-------	-----	----	--------

FUEL ECONOMY TEST - FOUR HOURS - Second GEAR

24.83	2663	3.50	1499	6.59	2.506	9.91	0.623	0.000	164	73	29.100
-------	------	------	------	------	-------	------	-------	-------	-----	----	--------

STEEL WHEELS

TEST G - OPERATING MAXIMUM LOAD

21.98	3265	2.53	1515	9.37	----- Not Recorded -----			175	86	28.930
25.38	2624	3.63	1501	5.30	----- " " -----			170	71	29.100
25.12	1872	5.03	1501	2.52	----- " " -----			164	64	29.090

FUEL ECONOMY TESTS - FOUR HOURS EACH - Second and Third GEARS

20.76	2138	3.64	1500	5.55	2.625	7.91	0.732	0.000	160	62	28.975
20.33	1520	5.01	1499	2.80	2.643	7.69	0.803	0.000	172	79	29.055

*Formerly called RATED LOAD; see REMARKS 4, page 4.

FUEL, OIL, AND TIME

Fuel Gasoline Octane 72 Weight per gallon (Belt, Rubber 6.17 pounds
 (Steel 6.18 pounds)

Oil: S.A.E. No. 10 To motor 2.625 gal. Drained from motor 2.149 gal.

Total time motor was operated 85 hours

Copy of Report of Official Tractor Test No. 307

BRIEF SPECIFICATIONS

Advertised speeds, miles per hour (rubber tires): First 2.59

Second 3.63 Third 4.85 Fourth 17.35 (1800 r.p.m.) Reverse 2.3

Belt pulley: Diam. 13 1/4" Face 6 1/4" R.P.M. (694 at 1500
(833 at 1800)

Clutch: Make Borg & Beck Type Dry Disc Operated by Foot pedal

Seat Pressed steel

Total weight as tested (with operator) (Steel 3800 pounds
(Rubber 5400 pounds)

MOTOR: Make Chrysler Industrial Serial No. 453

Type T57 - 503, *6 cylinder, vertical*

Head L Mounting lengthwise Lubrication Pressure

Bore and stroke: 3 1/8" x 4 3/8" Rated R.P.M. (Drawbar 1500
(Belt 1500 - 1800)

Port diameter valves: Inlet 1 5/16" Exhaust 1 5/16"

Ignition: Type Battery Make Auto-Lite Distributor Model I.G.C.-4402-1

Generator: Make Auto-Lite Model GBM - 4610 - A4 Serial No. 6-S004701

Starter: Make Auto-Lite Model MAV-4013-A Serial No. 6-S004093

Carburetor: Make Schebler Model TRX-22 Size 1"

Governor: Make Handy Type Centrifugal

Air Cleaner: Make United Type Oil-washed, crimped wire

CHASSIS: Type Tricycle Serial No. 255257 Drive Enclosed gear

Tread width: Rear 52" - 90" Front: Top 12 1/2" Bottom 9 1/4"

Steel: Drive wheels: Type Standard No. 2 Diameter 49" Face 8"

Lugs: Type Spade No. per wheel 12 Size 2 1/2" x 5"

Front wheels: Type Standard No. 2 Diameter 22 1/2" Face 4"

Rubber: Rear tires: No. 2 Size 11.25" x 36" - 6 ply Air pressure 15 pounds

Front tires: No. 2 Size 8.50" x 16" - 4 ply Air pressure 25 pounds

Added weight: Per rear wheel: (Cast Iron 424 pounds
(Water 351 pounds)

Omitted from original issue

4 pages-page 4

UNIVERSITY OF NEBRASKA - AGRICULTURAL ENGINEERING DEPARTMENT
AGRICULTURAL COLLEGE, LINCOLN

Copy of Report of Official Tractor Test No. 307

REPAIRS AND ADJUSTMENTS

No repairs or adjustments.

REMARKS

1. All results shown on pages 1 and 2 of this report were determined from observed data and without allowances, additions, or deductions. Tests B and F were made with carburetor set for 100% maximum belt horsepower and data from these tests were used in determining the horsepower to be developed in tests D and H, respectively. Tests C, D, E, G, and H were made with an operating setting of the carburetor (selected by the manufacturer) of 96.3% (at 1500 r.p.m.) and 95.0% (at 1800 r.p.m.) of maximum belt horsepower.

	DRAWBAR	BELT	
	Rubber Tires	1500 r.p.m.	1800 r.p.m.
2. Observed maximum horsepower (tests F & B)	31.50	35.40	40.67
3. Sea level (calculated) maximum horsepower (based on 60° F. and 29.92" Hg.)	33.04	36.82	42.58
4. Seventy-five per cent of calculated maximum drawbar horsepower and eighty-five per cent of calculated maximum belt horsepower (formerly A.S.A.E. and S.A.E. ratings).	24.78	31.30	30.19

We, the undersigned, certify that the above is a true and correct report of official tractor test No. 307.

Carlton L. Zink
Engineer-in-charge

E. E. Brackett

C. W. Smith

L. J. Hurlbut
Board of Tractor Test Engineers